Deloitte.

Crunch time

Finance in a digital world

This publication is based on extensive research with finance professionals, including in-depth interviews with CFOs of global businesses. You'll find their comments sprinkled throughout the document. To those CFOs who agreed to be interviewed, we offer our most sincere appreciation. Thank you.

"Finance teams need to understand that the world will continue to move even faster. We need to prepare ourselves to meet the demands of a business we haven't even seen yet."

A very short quiz

What do business leaders say about your finance organisation today?

A **Finance does too much.**

B **Finance doesn't do enough.**

C **I have no idea.**

D **All of the above.**

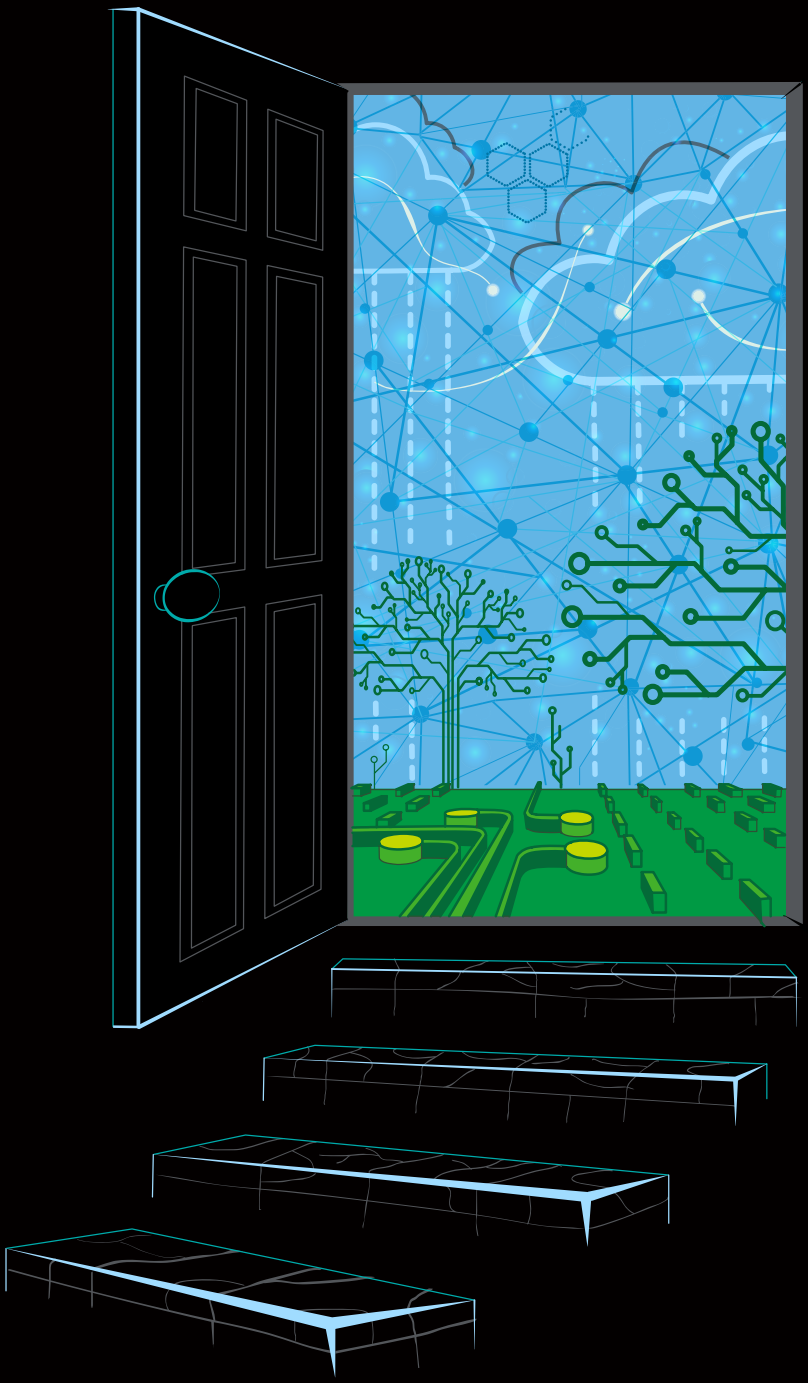
Scoring
Business leaders may not have a good understanding of all that happens in finance, but they do know what they want. Financing the company. Getting the books right. Forecasting performance. And help making better decisions. Is your finance organisation ready to do that?

When a Sumerian merchant first recorded the sale of livestock on a clay tablet, business technology was born.

Framing the future

Today, 5,000 years later, that ancient technology has evolved into a new class of digital tools that are reshaping almost every aspect of business. You don't have to look far to witness the spectacular chaos of cloud, robotics, analytics, artificial intelligence, automation, and more. These are some of the digital disruptors that are changing how business gets done.

What does all of this mean for the future of finance? Quite a lot.



"All of a sudden, data that was buried in a grave somewhere is coming to life. We have to make sense of it and use it as an asset to serve clients better."

Digital disruption

Finance organisations have lots of experience managing change. But digital represents opportunities we haven't seen before. Opportunities to explore massive amounts of information, to do it quickly, and to distribute knowledge wherever it needs to go. These shifts are not only driving operational improvements, they're also changing expectations for adding insight.

Data volumes are exploding

Information is flooding into business, pushing data volumes through the roof. Big data. Social media. The Internet of Things. The world creates 2.5 quintillion bytes of data every day.[1]

Unstructured is different

The massive growth of structured data is challenging enough, but the amount of *unstructured* data from video, photographs, and text raises analytical challenges that many finance organisations aren't prepared for. Many have neither the technology nor the talent to keep up.

Finance doesn't have a corner on analysis

People in the business have access to analytical tools that used to be owned by finance. When finance can't or won't add value, business partnership comes under threat.

Business cycles up for grabs

In a digital world, products can be launched in hours instead of months. They can disappear just as quickly—and so can customers. Cycles for planning, forecasting, capital allocation, and closing are all up for grabs. Does finance need to do more things in real time?

The talent crunch is real

Talent models for digital finance tilt toward data science and business partnering. Many finance organisations don't have the right people in place to make the shift. Training and development can help, but the need to recruit for new skills is taking on new urgency.

Start where you are

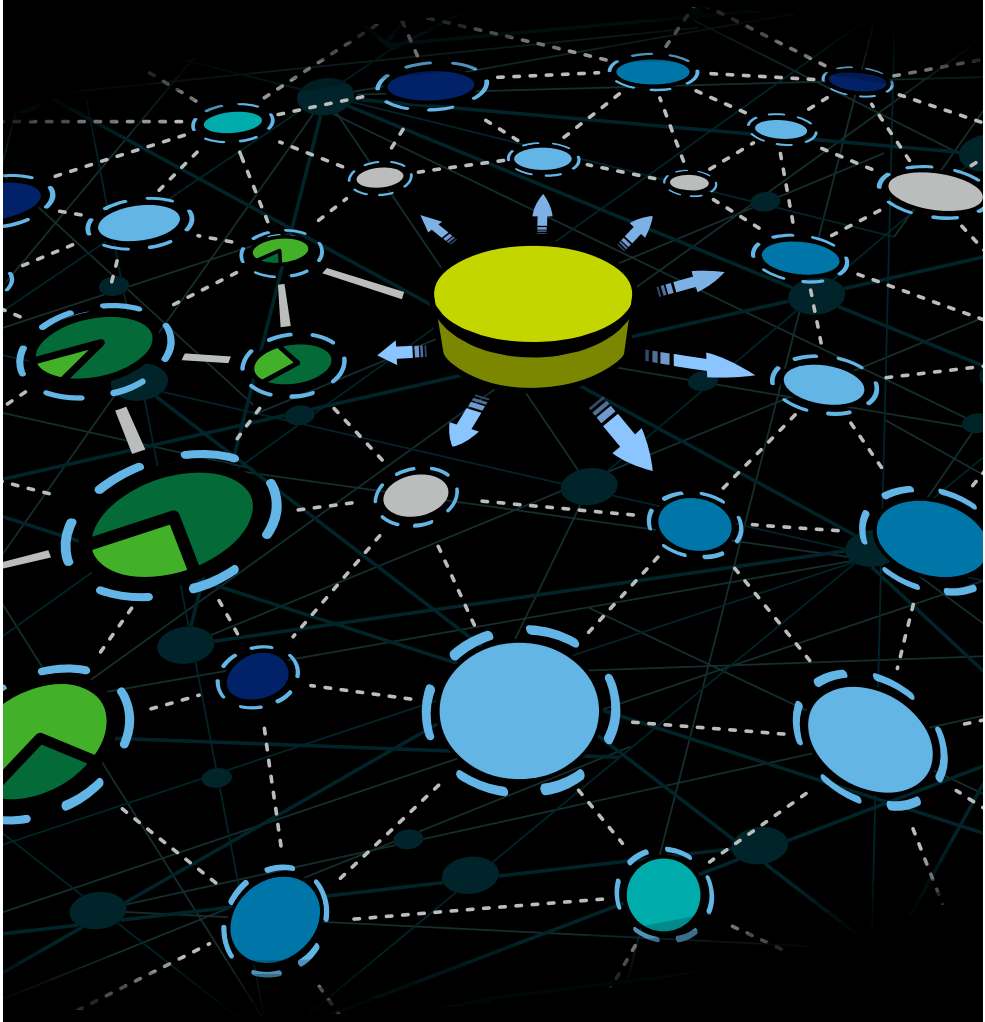
A CFO in an established business obviously faces different technology challenges than CFOs in companies that grew up digital. For the latter, finance may already operate completely in the cloud, with automation everywhere, and no such thing as a legacy system. Their people are digital natives.

Traditional companies tend to see digital differently. Many are adopting cloud and analytics solutions, but they still have large legacy systems in place—systems that require a lot of money and effort to keep up. Implementing change is hard and it's constant, with challenges coming from all directions.

Some finance organisations are responding by pursuing a "lights-out" model for operational finance, where some core processes happen through automation and robotics. In theory, this frees up people to add value in planning, forecasting, and supporting business decisions. Others are doubling down on analytics to improve their business partnering performance. Many are doing both.

Which path makes sense for you? What kind of roadmap will you need to realise the benefits of digital transformation?

In the end, companies will need to chart their own courses. But no matter which future you envision, the leaders will likely be those who figure out how to make digital work for finance—and for the whole business too.



New challenges, new tools

Some of the new digital tools available to finance focus specifically on updating core systems and existing capabilities. Other tools—we call them exponentials—are designed to deliver new and different capabilities. Together, they form a toolset finance can use to improve its own performance and serve the business more effectively, especially when these tools are used together. Our research suggests that these seven technologies have growing relevance for how the work of finance gets done.

Core modernisation

Cloud

Cloud is a kind of computing that uses scalable, elastic technology to deliver services over the Internet. Instead making large investments up front, finance can get the full stack of finance functionality "as-a-service," delivered through public, private, or hybrid clouds.

Exponentials

Advanced analytics

Analytics has long been part of the finance arsenal, but new techniques are helping business people tackle the crunchy questions with insightful answers. Often that means combing through big data to see patterns that suggest future opportunities.

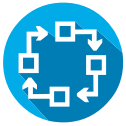
Cognitive computing

Cognitive computing and artificial intelligence (AI) simulate human thinking. This technology includes machine learning, natural language processing, speech recognition, and computer vision.

Process robotics
Process robotics automates transaction processing and communication across multiple technology systems. Robots perform recurring processes just like humans, but with less risk of errors and fatigue.

Visualisation
Visualisation refers to the innovative use of images and interactive technology to explore large, high-density data sets. Visualisation suites complement business intelligence and analytics platforms, offering rich graphics, interactivity, and usability on par with leading consumer experiences.

In-memory computing
In-memory computing refers to storing data in main memory to get faster response times. And because the data is compressed, storage requirements are reduced. The result? Speed and access to quantities of data that were previously unimaginable.



Blockchain
Blockchain is a digital distributed ledger, where transactions are verified and securely stored on a network of distributed and connected nodes, without a governing central authority.

Cloud

Agility and efficiency with everything-as-a-service

For companies that want flexible, scalable services without incurring large startup costs or technical debt associated with IT architecture and code maintenance, cloud is made to order. According to Gartner, at least 25 percent of new core financial application deployments in large enterprises will be cloud software-as-a-service (SaaS) by 2018.[2]

Our own research shows that cloud platforms have been implemented by nearly 80 percent of the companies surveyed. Nearly half of responding CFOs say they use this technology in a few areas, and more than 30 percent say they use it more broadly. Another 12 percent say they are evaluating or piloting the technology.[3]

Crunch time

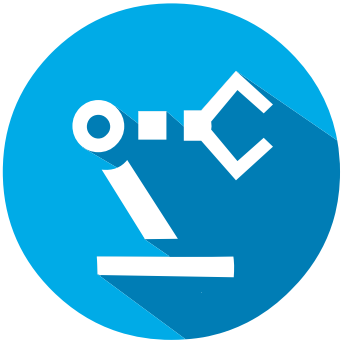
Be not afraid. Cloud services come with legitimate cyber and security concerns that must be taken seriously. But there are also numerous finance applications where cloud simply makes too much sense to ignore. Top applications for early adoption include planning, budgeting, forecasting, procurement, expenses, reporting, and payroll.

"Three or four years ago, cloud was a missionary sale. Now it's mainstream. Most RFPs today have a cloud in the bakeoff."

Cloud in action

Following early successes of pure-play SaaS providers, ERP technology giants began shifting their strategy to cloud solutions, enhanced with new services, including cognitive computing, in-memory, and cyber security.[4] They're in a full-scale arms race, with benefits going to companies that want to streamline operations and reduce costs. Smaller players with niche capabilities are disrupting the market, too, especially for planning and forecasting.

A global private equity firm wanted to implement cloud-based ERP. The firm's interest was driven by growth, geographic expansion, and increased reporting demands. Cloud helped them transform finance into a scalable, controlled, and more efficient organisation.[5]



Process robotics

Faster, cheaper, better

Robotics and automation have fundamentally reshaped global manufacturing, upending conventional thinking about distribution channels, supply chains, and labor costs. But that's just the tip of the iceberg. From call center management to inventory tracking to the Internet of Things, and more, innovative applications of automation have been bubbling up in nearly every industry and business function. Even in finance.

Process robotics uses software programs to perform repetitive tasks and automate processes, such as procure-to-pay and order-to-cash. These processes often involve large volumes of manual activities, including data entry and reports. According to our research, process robotics is already being used by about 30 percent of the companies we surveyed.[6] Their motives are familiar: more speed, less cost, and higher accuracy.

In addition, automation gives finance an opportunity to move people into functions where they can help the business make better decisions. That's a good thing.

Crunch time

There's no need to reinvent the wheel. Many finance organisations have discovered good opportunities to reduce costs and improve productivity through process robotics. Avoid analysis paralysis by choosing a proven application and diving in.

"We have to be ever more efficient. That means driving costs down for transactional services using automation, robotics, and maybe even outsourcing to new providers in this space."

Process robotics in action

A large bank deployed a full Robotic Process Automation (RPA) implementation using 100 robots running 18 processes to handle more than 85,000 requests each week. The output capacity delivered by the robots was equivalent to roughly 230 FTEs delivered at 30 percent of the cost of recruiting more staff. Additionally, two of the top five quality fails were eliminated following introduction of the robots.[7]

After exploring ways to improve its mature shared services operation, a global manufacturer concluded it could bypass traditional Business Process Outsourcing and focus instead on robotics and cognitive technologies. The potential benefit? The company could automate the equivalent of 80 percent of its FTE workload.[8]

Visualisation

Making information accessible

Making the leap from raw data to actionable insights is a priority for many enterprises. With human attention spans today running at only eight seconds,[9] we require methods and tools that allow us to more quickly decipher the ever-increasing volume of data available.

Visualisation tools can bring analytical solutions to the enterprise faster, enabling rapid prototyping that reduces development time. These tools also allow companies to "see" developing stories that directly address decisions that matter. Visual metrics are easily understood by more people, enabling analytics to expand beyond the domain of data scientists and quants.

Advanced visualisation tools have been implemented by nearly 30 percent of the companies we surveyed, with another 12 percent reporting they are evaluating or piloting the technologies.[10]

Crunch time

It's often assumed that visual analytics tools themselves will provide insights out of the box. They generally don't. Like anything else, finding effective solutions requires sifting through options, experimenting, and then settling on an approach that works for your unique needs.

"We have to be able to expand the information we provide and have it easily accessible. At the end of the day, that's the strategic part. The fun part."

Visualisation in action

A global manufacturer wanted to improve the speed, consistency, and quality of information decision-makers were receiving, specifically so they could analyse problems more quickly. The company created dashboards that were positioned on the production floor to show when there might be an imminent bottleneck in the production process. With these visual tools in constant sight, managers could quickly reallocate people and resources to avoid costly slowdowns.[11]

Using visualisation tools, executives at a global bank are now able to analyse financial data more efficiently using interactive, integrated reports. The reports allow executives to drill down into leading and lagging performers across different periods and compare scenarios, such as actual financial metrics to budgeted metrics.[12]

A health services company faced challenges reconciling information across reports, with little ability for executives to customise information or dig deeper into the data. With visualisation tools, the company now delivers easy-to-use trend analyses and KPIs that provide insights into variances and root causes.[13]

Advanced analytics

Deeper insights, better predictions

Having effective planning, forecasting, and profitability analysis means a lot to business leaders. Fortunately there are proven ways for finance to get better at it, including predictive modeling. Many companies are already making significant analytics investments in these areas.

Advanced analytics solutions have already made their way into the toolsets of finance teams around the world. As finance organisations work to meet growing expectations for value-added insights, the trend will likely continue, with talent increasingly focused on analysis and interpretation including application of sophisticated algorithms used by data scientists.

About 45 percent of surveyed CFOs say they have already made investments in finance and accounting analytics, and about 52 percent say they will invest more in the future. The financial services sector shows highest levels of past investment among respondents, at 64 percent, with the healthcare sector highest for future investment, at 71 percent.[14]

Crunch time

Focus on forecasting. There are lots of ways to apply advanced analytics to amplify the strategist and catalyst roles of finance. If you're looking to get started, invest in tools specifically designed to improve forecasting. CFOs tell us it's the place their business colleagues expect the most support.

"Finance organisations are becoming transformation agents and data scientists, quite frankly."

Advanced analytics in action

A global consumer products company wanted to improve its financial planning and forecasting capabilities, which lacked transparency. Using advanced analytics, the company was able to achieve a 99.6 percent accuracy in net sales forecasting for the first year of a two-year rolling forecast.[15]

Advanced analytics can also streamline processes and reporting. At a large grocery store chain, reporting was fragmented with 155 metrics used for executive reporting. Using advanced analytics and visualisation, the company reduced its metrics to the most essential and predictive *eight*, each focused on helping the company make better choices.[16]

A health care provider wanted to understand why payroll seemed out of whack with headcount growth. By using a payroll analysis tool, they were able to see increased shift differentials, and could target a malfunctioning scheduling system.[17]

Cognitive computing

Automating insights

"Cognitive computing" is a general term that covers machine learning, natural language generation, speech recognition, computer vision, and artificial intelligence. Taken together, these tools simulate human cognitive skills, grinding through mountains of data to automate insights and reporting in real time.

Our research shows that cognitive computing and artificial intelligence have been implemented by about 17 percent of the companies we surveyed. Another 20 percent say they are piloting the technologies in specific functional areas.[18]

Crunch time

Choose reading and writing. Natural language science (NLS) enables companies to read things like contracts and purchase orders—and to tackle them at high volumes without human intervention. In addition, natural language generation can supplement routine reports with narrative commentary using personalised text. These applications are a good place to start.

The elements of cognitive computing

Machine learning

Machine learning is the ability of computer systems to improve their performance independently by exposure to data, outcomes and a feedback loop, without the need to follow instructions.

Speech recognition

Speech recognition is the ability to accurately transcribe and understand human speech.

Natural language processing

Natural language processing is the ability of computers to work with text in the same way that humans do. This gives computers the ability to write high-quality personalised text accommodating idiosyncratic situations in a non-repetitive and natural way.

Computer vision

Computer vision is the ability of computers to identify objects, scenes, and activities in natural visual environments.

"Given the power of analytics, machine learning, and greater sources of data, our role of business partner may evolve to where we're constantly considering different ways to adapt our business model."

Cognitive computing in action

Our own firm is automating standard commentary related to weekly and periodic financial results across all businesses. This automation effort will be freeing up time for the finance team doing this work to focus on more strategic tasks.

A news agency uses cognitive software to automate corporate earnings news articles. After an initial learning curve, the process of automated reporting is virtually error-free. The company now produces 3,700 earnings stories per quarter, a 12-fold increase over its manual efforts.[19]

In-memory computing

Manage more information about more transactions

Dealing effectively with digital information requires a technical architecture that can handle massive data sets, without sacrificing availability or timeliness. That's what in-memory technology delivers. Key applications include transaction processing, event processing, distributed caching, and scenario modeling.

Only 10 percent of CFOs surveyed say they currently use in-memory technologies, and many cite a loss of detail as data is aggregated.[20] But look for that to change a lot over the next few years. For many future data management needs, in-memory will likely be an indispensable tool. The explosion of information streaming in from the Internet of Things alone could make in-memory a critical capability for companies undergoing digital transformation.

Crunch time

Get your geek on. Where do you need fast access to analyse a high volume of concurrent transactions? Where would automated notifications in real-time enable better decision-making? Where do you need dynamic big data calculations in milliseconds? You can't address these questions without diving deep into data—and in-memory technology enables that to happen.

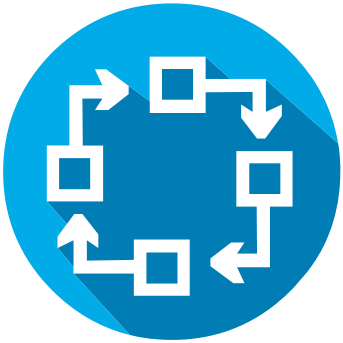
"In-memory is one of the most exciting areas for finance because of the possibilities it creates in providing insights for unlocking value from big data."

In-memory computing in action

A transportation company carried more than 23 million passengers each day on more than 12,000 trains. Using legacy technology, the company could handle no more than 40,000 concurrent Internet users, many of whom spent up to 30 minutes trying to book tickets online. With in-memory technology they can now handle more than 120,000 concurrent users. Completing a reservation now takes mere seconds.[21]

A retailer used in-memory as part of a multi-year program to modernise their aging financial systems environment. The company's legacy budgeting and forecasting system was more than 20 years old, and was heavily dependent on spreadsheet templates and supplementary schedules. Their solution? A new system with the ability to drill down from totals to transactional detail. The system delivered better analysis, reduced time spent on financial processes, and enhanced output view options.[22]

An insurance company wanted to transition to a new finance platform to improve and standardise financial processes. Using in-memory technology, the company was able to gain near real-time access to data to enable analysis and support decision-making.[23]



Blockchain

Building digital trust

Blockchain offers the storage of immutable records of transaction data through distributed networks. It retains the full history of transactions, which makes them verifiable and independently auditable. Blockchain also enables peer-to-peer transfer of value, potentially eliminating the need for intermediaries. In addition, event triggered programmable contracts, also known as smart contracts, can be stored and executed on blockchain.

While the technology is gaining momentum, there are still unresolved issues, including risks associated with regulation, control, and security. Only 4 percent of CFOs surveyed say they use blockchain technologies, and familiarity with the technology appears relatively low.[24]

Crunch time

Wait and see. Developments in blockchain are moving forward steadily, especially in financial services, where companies could see $20 billion in annual savings by 2022.[25] Market forecasts indicate that 80 percent of the world's largest banks will have initiated blockchain projects by the end of 2016.[26] Even if you're not in banking, keep an eye on what financial institutions are doing. Current obstacles to blockchain adoption should eventually be resolved, and it will likely be coming your way.

"Anything I could say about adopting blockchain would be idle speculation at this stage. You can quote me on that."

Blockchain in action

One global e-commerce company is offering a different approach to online retail, by connecting buyers and sellers directly. The open-source project is creating a decentralised network for peer-to-peer commerce. Instead of visiting a website, users download and install a program that directly connects them to other people looking to buy and sell goods and services, removing the middlemen altogether.[26]

A bank in Japan has completed a three-month trial on the application of *mijin* (a platform for creating blockchains) to its accounting systems in a real-world environment. In the demonstration, 2.5 million virtual bank accounts and an environment with capacity to process 90,000 transactions every hour were created, with significantly reduced risk of failure and fraud.[27]

Global financial institutions are using blockchain for cross-border payments, operating close to real-time and at a fraction of the cost of current platforms.[28]

Don’t ignore the people puzzle

Finance organisations have the people they need to produce results in the current world. But as that world changes, what will be required to help those people continue to be successful? What new approaches will be needed in recruiting, development, and organisational planning?

The growth of digital business is already reshaping the talent marketplace, far beyond finance. As companies seek to upgrade their workforces in all areas, they’re placing a premium on people who have relationship and analytical skills and can also understand the business.

Finance faces the same challenges, and professional development is only part of the solution. Some people will be able to make the transition from accounting to more analytical roles, but some may be left behind. In the meantime, every hire you make is an opportunity to prepare for a digital future.

As you think about your talent model, don’t ignore the emerging gig economy, where “cloud-based talent” is sourced for specific tasks and outcomes, and paid by the drink. It’s one effective way to gain better talent and more organisation flexibility.

Research shows that millennials will make up 75 percent of the workforce by 2025.[29] As digital natives, they expect consumer-grade technologies to be part of their everyday work lives. The people you need won’t want to work at a place that is not cutting edge or doesn’t give them the chance to learn, grow and innovate.

Talent essentials for digital transformation

Leadership

Digital transformation doesn't happen without leadership. In finance, a CFO champion is indispensable. Be deliberate about the commitments you're making, with a sharp view to the future and a clear roadmap for getting there.

Culture

Clear ambitions give people the opportunity to understand where they can push boundaries and drive innovation. Previous generations of finance professionals worked in an environment that valued predictability. Those in the newer generations tend to seek more experimentation, innovation, and progress. With every new hire, your finance culture can become more and more ready for the digital world.

Skills

The skills needed for digital finance are different from what has been needed in the past. Finance talent today needs a solid knowledge of technology and data science, as well as a deep understanding of the business itself.

Engagement

What would it take for people to see your organisation as actively and fully committed to them and their goals? Getting there is key to having a more engaged and inspired workforce.

"Digital transformation is fundamentally human-centric because it's about imagining new ways of value creation. For that to happen, people have to be digital enablers as well as users of new digital capabilities."

M: Hello. Maria in marketing here.

J: Hi Maria. This is John.

M. John the CFO? What's up?
Did you lose some bitcoins?

J: Funny.

M: What can I do for you?

J: I need your help. You've been on a digital binge in marketing for two years. I want to know what you've learned.

M: Don't tell me you're trying to figure out social media again.

J: Ha ha. I'm serious.

M: Okay. But I should warn you in advance. Digital isn't just about new technologies. It's a whole new way of thinking and working. Are you ready for that?

J: I think I need to be.

M: Then let's do it. We've made plenty of false starts—and we've learned a lot.

J: I'm counting on it. I'll send you an invite for a Thursday meeting.

M: Be sure to bring your phone. I'm going to take a picture of you stepping into the brave new future and post it on social media. Don't worry. You won't feel a thing.

J: Don't even think about it.

Make the call

The pace of digital is putting new pressures on finance to adapt. That much is certain. Exactly what it means for finance in your company is a different question. It's the question you should be asking.

Our research shows that most finance organisations we spoke with are already on their digital journeys, even if their roadmaps aren't explicit. Not only are CFOs making targeted investments in cloud, analytics, and robotics, they're also rethinking talent in anticipation of growing business expectations for value-added insight.

Fortunately, CFOs are not alone. Other parts of the business are often leading digital initiatives, and there's a lot to learn from their experiences. Talk to your colleagues. Find out how transformation has reshaped their talent and operating models. Learn from successes they've had—and from their failures.

Then begin mapping out a transformation for finance, focusing first on applications that have proven to be clear winners in other finance organisations. Have a master plan in mind, but execute it one step at a time. Things are changing fast. Don't make big bets until you know you're ready and understand the potential risks.

No matter what future you see ahead for your own finance organisation, one thing is sure. If business leaders around you are going to compete in the digital world, they'll need to process more information more quickly, and turn that information into deeper insights faster than ever. That will require new technology—and a group of people who are curious and skilled in using it.

"Not having a roadmap would be really dangerous these days because the pace of transformation is speeding up in every industry. Be on the lookout for quick wins and use them to validate your direction."

Another short quiz

What do you think?

(A) **Sorry. I have other things to do right now.**

(B) **I get it, but the path forward seems fuzzy.**

(C) **We're already on the digital road.**

(D) **Call me.**

Scoring
This report about finance in a digital world was developed, in part, using confidential interviews with CFOs at some of the world's leading companies. Those ongoing interviews reflect our commitment to understanding what finance organisations are already doing in response to emerging digital forces—as well as what they expect to see in the future.

Let's talk

If you'd like to learn more about how leading companies are approaching the world of digital finance, we'd welcome the opportunity to talk with you. And if you'd like to participate in our ongoing research program, please let us know.

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